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The Agricultural College

EXTENSION BULLETIN

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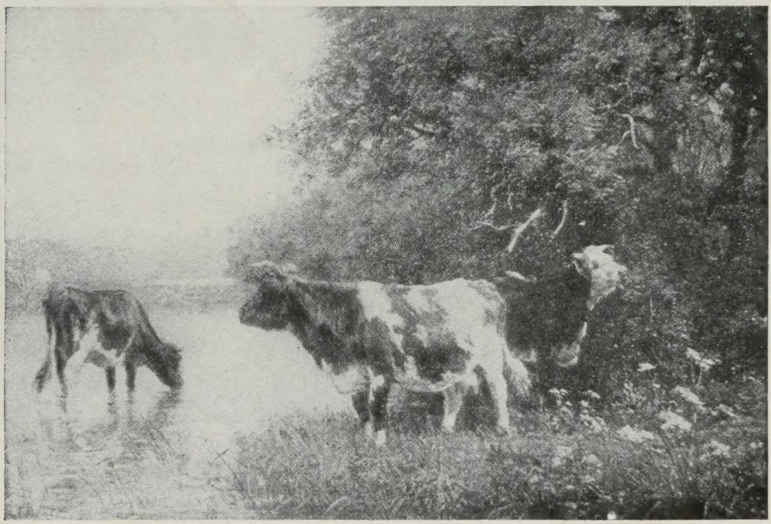
A LESSON IN JUDGING CATTLE

By CHARLES SUMNER PLUMB, Professor of Animal Husbandry,
Author of "Types and Breeds of Farm Animals."



Far o'er the fields the tall daisies blush warm,
For rosy the sunset is dying;
Across the still valley, o'er meadow and farm,
The flush of its beauty is lying.
—Celia Thaxter.

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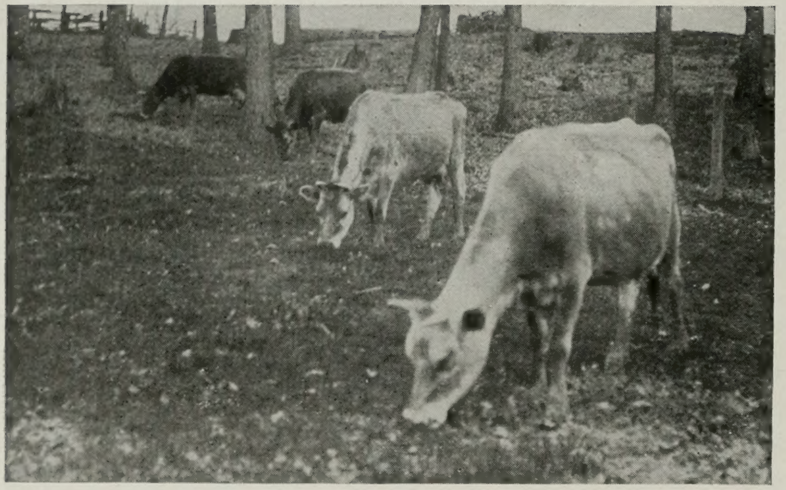


Soon o'er the grassy knoll appeared the cattle, red and brown,
And from the pasture to the lane came quickly trotting down.
—E. J. Hall.

MOO-COW-MOO.[1]

My pa held me up to the moo-cow-moo,
So clost I could almost touch,
En I fed him a couple of times or two,
En I wasn't a-fraid-cat much.

But ef my papa goes into the house,
En mamma she goes in, too,
I just keep still, like a little mouse,
Fer the moo-cow might moo!

The moo-cow-moo's got a tail like a rope,
En it's raveled down where it grows,
En it's just like feeling a piece of soap
All over the moo-cow's nose.

En the moo-cow-moo has lots of fun
Just swinging his tail about;
En he opens his mouth and then I run
'Cause that's where the moo comes out!

En the moo-cow-moo's got deers on his head,
En his eyes stick out of their place,
En the nose of the moo-cow-moo is spread
All over the end of his face.

En his feet is nothing but finger nails,
En his mamma don't keep 'em cut.
En he gives folks milk in water pails
Ef he don't keep his handles shut.

'Cause ef you or me pulls the handles,
Why, the moo-cow-moo says it hurts,
But the hired man he sits down clost by
En squirts, en squirts, en squirts!

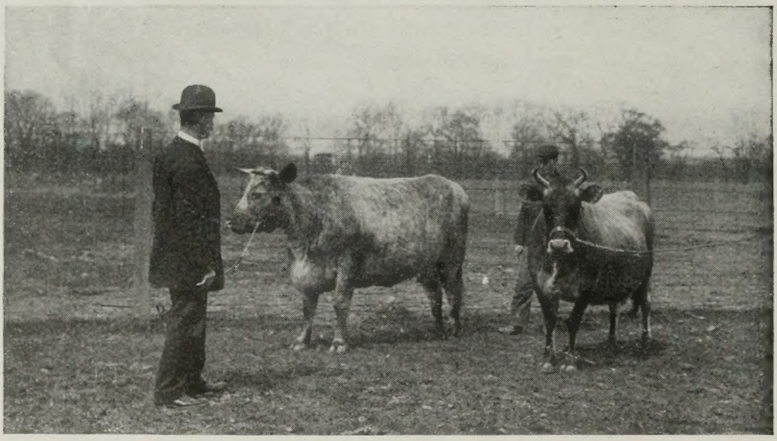
---

(1) "Chronicles of a Little Tot," by Edmund Vance Cook, Published by the Dodge Publishing Co., New York.

A LESSON IN JUDGING CATTLE

By CHARLES SUMNER PLUMB

Standing in a corner of the barnyard at the University was a large, broad-backed cow. She attracted the attention of Henry Ashton, who was seeing the herd for the first time. ''What is she?'' he asked. ''That, my boy, is Czarina,'' I replied. ''She is a Shorthorn cow, and the State University bought her to teach our young men an object lesson with good stock. You noticed at once that she is pretty large. Here in the yard are forty other cows. If you will look closely you will see still others with forms rather like that of Czarina.'' ''Yes, I see that,'' said Henry, ''but there are some cows here that strike me as being quite a bit different. They haven't the same shape.'' ''Right you are,'' said I, ''and in about five minutes I will give you a little object lesson about shape and usefulness among cows. We will just have that Jersey cow, Silver's Mollie, brought up alongside of Czarina. Steady there!''



"SHE IS THICK ENOUGH BEHIND."

''Now first, I want to tell you that the form or shape of a farm animal indicates her special use or purpose. Good specimens of ani-

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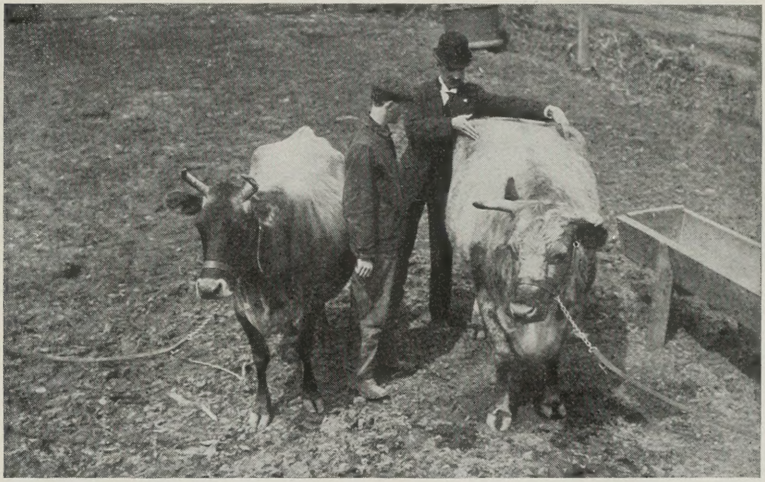
Since the law requires that Agriculture be taught in the common schools during the coming year, it has been thought best to republish some of the Extension Bulletins which will be most helpful in conducting the work. A. B. GRAHAM,
Superintendent of Agricultural Extension.

mals that are what we call well bred, always belong to a type of a distinct kind. We say cows like Czarina belong to the beef type. If you will stand back a bit, my boy, and take a sidewise view of her, you will see that she is pretty smooth all over, and that she has a deep body and not very long legs as compared with some of the other cows. You will notice that her breast extends forward so that she looks rather full there, while the back end of her body is also plump and well filled out. Now change your position and look at her from in front. What do you see?"

"I notice," said Henry, "that her front legs are wide apart, that she is thick through and that her breast is very big."

"That is right. Now go back of her and what do you see?"



"SHE IS BROAD ON TOP."

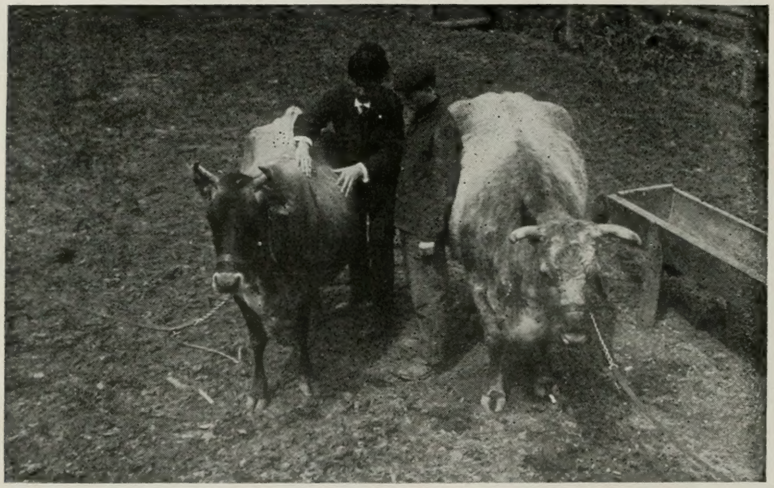
"She is thick enough behind. She has lots of thick meat there."

"That is exactly it," said I. "Now, if you can look down over her back, you will see, I guess, that she is broad on top, not only along the middle of her back, but in behind on top where you said she was thick, and also in front over her shoulders. She is what we call broad and long and thick, or blocky. She has a great body. That means she can eat a lot of food. If you will feel of her back you will notice how it resembles a firm cushion. Right there, where it is so wide, the butcher gets those fine steaks your mother buys, which cost 25 cents a pound."

"O yes," said Henry, "I know what you mean. Those are what they call porterhouse, for that is what I heard the butcher call them."

"Yes, you are right. Now here is an important thing. Cattle like

Czarina have been bred to produce meat. The man who breeds such cattle tries to produce just as wide backs and just as thick ends as he can, for here is where the butcher gets his best meat. Do you notice that fat steer over there? We call him Ohio Prince. Well, he had a mother like Czarina. Now we have been feeding him to show what the farmer can produce if he puts good feed into the stomach of a steer that is bred right. Notice how wide his back is and how thick he is at each end. If you feel along his back, it will be mellow and thick. If you rub your hands along his sides you will hardly notice that he has any ribs. That is because his food has been changed into meat which has been smoothly spread all over his skeleton. When the butcher kills him he knows pretty near what he will get. He calls him a prime steer and says he will top the market if he sells him. He will make a mighty fine killer.''



"SHE SHOWS HER RIBS."

''Well, how about this Jersey cow?'' said Henry. ''Aren't you going to say anything about her?''

''That reminds me, I was just about to remark that now we would take a look at Silver's Mollie. We think she is a beautiful cow, but the Lord never intended her for a beef-maker. Won't you just stand back a bit and look at her as you did Czarina? Now tell me what you see.''

''To begin with,'' said the lad, ''she isn't as big by a great deal. Then, she shows her ribs, and her muscles look big to me. Her body is deep, and her legs are short, and she seems deeper in behind than forward. When I stand and look at her from in front, she seems narrow.

Her breast isn't thick like Czarina's. It has a kind of sharp edge to it, and I notice her neck is rather long and thin, especially on top, while Czarina's seems short and thick."

"Yes, you are right, my boy, as far as you have gone. Now go behind and look at her. What do you see now?"

"Well, she is pretty wide, and she has a big bag between her legs which are thin behind and muscular. I noticed Czarina and the steer had real thick, roundish sort of legs."

"Yes," said I, "they cut the round steaks from those thick parts of the leg. That is where some of the heaviest meat is found on the steer. We call that the hind quarter. But let us look back to our Jersey. Now come and stand with me and look down over her back. You notice that she is broad in the middle, but not so wide as Czarina by a great deal. She is narrower all over. If you will look down on her from over her fore legs you will notice that she is real narrow and sharp, where Czarina was thick and wide. Now the beef type is thick all through here in front, while this Jersey cow is sharp on top and then widens off below like a wedge. You said she seemed narrow and sharp as you stood in front and looked at her, but she was thick behind. You also said she was much deeper behind than in front as you looked at her from one side. So you see you have discovered something of a wedge form in this Jersey, and as you saw it from three positions, we call it a triple wedge form. That is what we call dairy type."

"YOU SAID HER THIGHS WERE THIN AND MUSCULAR."

"Yet one of the most wonderful things about the dairy cow, that we have hardly referred to, is her udder, or as we often call it, her bag. This is held by strong muscles up between the hind legs at the thigh, and when it is of good shape it has considerable front and rear to it, with four nice teats hung on a level and wide apart, and just big and long enough for a man to take them comfortably in his full hand when he is milking. Now when you first looked at Silver's Mollie from behind, you said her thighs were thin and muscular. That is just as she should be. If her thighs were thick and meaty she would not have room in between for that big, fine udder which makes so much milk."

"There is one other thing, Harry, to which I want to call your attention that but few people ever notice. If you will put your hand upon the under side of the body of Silver's Mollie, in front of her udder, you will feel a great big vein on one side; on the other side you will find another. These are called milk veins, and on some cows they are almost an inch thick and are twisted along under the belly in a most interesting way, and finally disappear at a hole in the belly, which is known as the milk well. Good judges of dairy cattle think the best milkers, as a rule, have large udders, milk veins, and milk wells. These are always much larger on old cows than young ones, just as the veins on the hands of old people always stand out more than they do on you young chaps. The cow's udder is a most wonderful thing and of great capacity. Good cows give several times more than their weight in milk. In 1905 Silver's Mollie made 6286 pounds of milk,

"SHE IS LEAN ALL OVER."

which is seven times as much as her own body weight of 900 pounds. and that milk contained over 300 pounds of butter fat.''

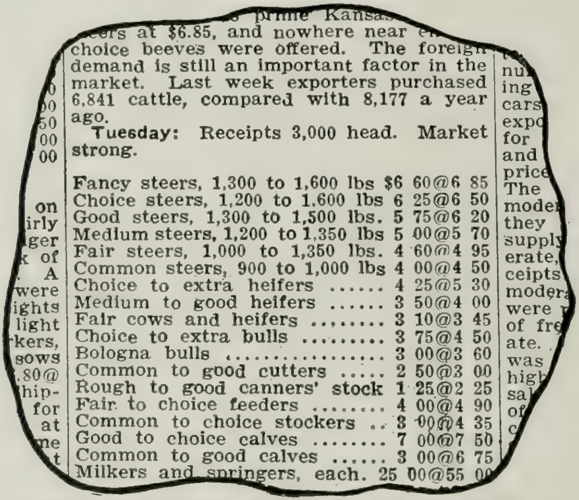
''Now, Henry, when you put your hands on Czarina, you found her all covered with mellow flesh, but this cow—Silver's Mollie—you say is muscular and shows her ribs. Yes, she is lean all over, and you do not feel any fat on her skeleton. That is because her ancestors have been bred for generations to make milk, and her food helps to make milk instead of meat. Thus each cow is bred for a special purpose, and the person who understands the type is in a position to purchase or to produce the one that will best suit his purpose.''

''There is another thing to which I want to call your attention before we finish talking about these cattle. That thing is what stockmen call quality. High class animals always have the most quality. It is shown in a fine, silky coat of hair, in a mellow, elastic skin and in fine bones and neat joints. There is a lot of difference in coats of hair. One cow may have hair that is fine and soft and thick. There is a very fine and close undercoat and then longer, coarser hair. Such hair is a great protection in winter. Other animals, and they are the most common, have coarse, long hair. Their bones are also likely to be big and coarse. When an animal has plenty of quality you can easily take the skin in the hand between thumb and fingers and pull it out from the side of the body. It will be mellow and roll up somewhat in the hand. If the cow lacks quality her skin will be thick, tight, and not easily taken in the hand. Fine quality as seen in the hair, skin, and bone means, with the beef animal, that when it is killed there will be much less waste in the carcass than if the conditions show lack of quality. So also the dairy cow with plenty of quality is a better producer of milk than if the quality is lacking.''

''Do people pay more for these cows if they have the types you have been talking about, and this quality?'' said the boy.

''They certainly do. Years ago, when our cities were small and the country was young, people did not pay much attention to these things, but, as the country and the markets grew, the dealers in stock began to get more and more particular about the types. They divided the animals into different classes, and the nearer, for example, the beef steer in the market comes to the best type, the higher the price he brings. And so they say an animal is a fancy or a choice steer, or only good or medium, or perhaps he is only fair, or common. In each case, from fancy to common, the grade is getting farther and farther away from the type of Ohio Prince. The poorer he is, the less the butcher will pay. By the way, here I have in my pocket a copy of a live stock paper, in which the Chicago market prices on steers are given, and you notice that the price paid becomes lower as the quality and type drop toward common. It is the same way with dairy cows, with draft horses, with fat hogs, or any other kind of stock."

"Now there is a great deal more that might be said on this important subject of types and breeds of stock and the judging of them, but that is enough for this time. Perhaps one of these days you will be a student in the Agricultural College and then you can study and judge live stock to your heart's content."



prime Kansas
eers at $6.85, and nowhere near
choice beeves were offered. The foreign demand is still an important factor in the market. Last week exporters purchased 6,841 cattle, compared with 8,177 a year ago.

Tuesday: Receipts 3,000 head. Market strong.

Fancy steers, 1,300 to 1,600 lbs	$6 60@6 85
Choice steers, 1,200 to 1,600 lbs	6 25@6 50
Good steers, 1,300 to 1,500 lbs.	5 75@6 20
Medium steers, 1,200 to 1,350 lbs	5 00@5 70
Fair steers, 1,000 to 1,350 lbs.	4 60@4 95
Common steers, 900 to 1,000 lbs	4 00@4 50
Choice to extra heifers	4 25@5 30
Medium to good heifers	3 50@4 00
Fair cows and heifers	3 10@3 45
Choice to extra bulls	3 75@4 50
Bologna bulls	3 00@3 60
Common to good cutters	2 50@3 00
Rough to good canners' stock	1 25@2 25
Fair to choice feeders	4 00@4 90
Common to choice stockers ..	3 00@4 35
Good to choice calves	7 00@7 50
Common to good calves	3 00@6 75
Milkers and springers, each.	25 00@55 0

"THE PRICES BECOME LOWER AS THE QUALITY AND TYPE DROP TOWARD COMMON."

IS IT A BEEF OR DAIRY TYPE?

EXPERIMENTS WITH MILK AND BUTTER.

1. Take a tin can (a very clean baking-powder can), fill it half full of milk and set it on the stove. The milk boils and gives off steam. The steam is the water of the milk. A calf's body is mostly water. If we leave the can on the stove until the milk begins to brown, the water will have been given off. About seven-eighths of the milk is water and one-eighth is solid matter.

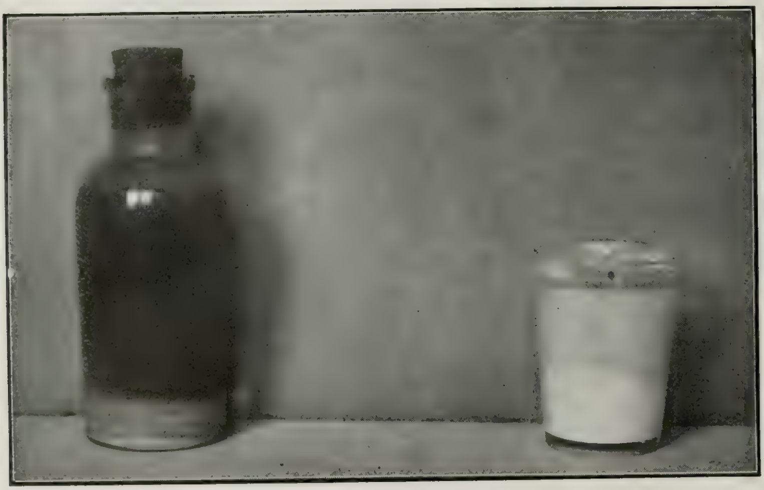
2. Take a baking-powder can cover; fill it half full of milk; set it on the stove and evaporate the water as in Experiment No. 1. When dry, place it on the coals in the stove or on a gasoline stove. The dry matter burns. It is, therefore, organic matter. Get the cover white hot if possible. The organic matter goes up in smoke, but there is a white ash left behind. That is the milk ash or mineral matter necessary for the bones of the calf.

Apparatus necessary to make a simple analysis of milk.

3. Take about a quart of milk (preferably skimmed milk) in a tin dipper or pail. Warm it to 95 degrees F., using any common thermometer to test the temperature. Now add strong vinegar or rennet (if muriatic or sulfuric acids are to be had, they may be used, only a few drops being necessary. By addressing A. B. Graham, The Ohio State University, Columbus, Ohio, enough rennet for several experiments will be mailed free of charge. Rennet is the best agent). The milk becomes thick. Stir it with a table knife or spoon until the curd or thick part is broken into pieces the size of grains of corn. Heat it to 120 degrees F. A greenish liquid appears. This liquid is called whey. The curd is the cheese part; there are about 27 pounds in 100 pounds of milk. It can be dried. Pour off the whey into a glass fruit jar. Can you see through it plain enough to see coarse newspaper print?

4. Take the whey obtained in Experiment No. 3 and heat it in a tin dipper to boiling point. If the experiment in No. 3 was performed with rennet, add a tablespoonful of vinegar. Now turn it out into the glass fruit jar. Notice the little white flakes floating in the liquid. They are flakes of albumen. They have been cooked by the heating just as the white of an egg changes from transparency to white by boiling or frying. Now set the jar away for several hours. The albumen settles to the bottom. There is about seven-tenths of a pound in 100 pounds of milk. Now can you see coarse print through the liquid?

5. Pour off the clear liquid from the jar into the tin dipper, being careful not to stir up the albumen in the bottom. Set it on the stove and boil to dryness, being careful not to burn it. It may be necessary to stir it toward the last with a knife. The white substance is the milk sugar with part of the ash of the milk mixed with it. There are about five pounds of milk sugar in 100 pounds of milk.



One pound of well worked butter
Dark portion, butter fat
Gray, water
Light, curd and salt
Experiment No. 8

Glass of skimmed milk
Gray portion, whey
Light, curd
Experiment No. 3

6. Take a bottle of soapy water. Shake it up. The air bubbles rise to the top. Notice that the bubbles are not all of the same size and that the large ones rise faster than the small ones. They form a layer of suds or cream on top. Why do the bubbles rise? The air is lighter than the surrounding liquid. Why do the large bubbles rise faster than the small ones? The liquid sticks to their surface and retards them. The large ones have more volume than the small ones in proportion to their surfaces and consequently the retarding action is less in proportion to the lifting force.

The fat of milk is in the milk in the form of little globules, which vary in size. The casein, albumen, milk sugar, ash, and water may be likened to the soap solution and the fat globules to the air bubbles.

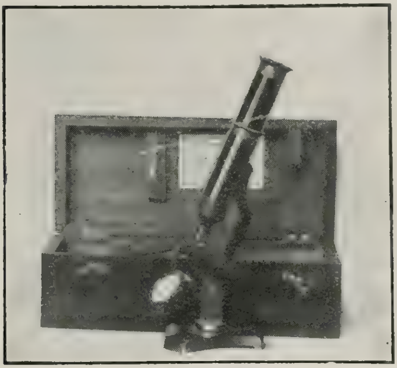
They rise to the top, the large ones faster than the small ones, and make a layer on top which is called cream.

7. Take a pint of cream, 70 degrees F., in a quart glass fruit jar. Shake it (churn it) until the butter comes. Skim out the butter, rinse it with clear water and then work it into a lump. Put it in a bottle and put the bottle into a dipper of hot water. The butter melts down into fat or oil. It is the fat of the milk. The butter milk is just like the skim milk in composition.

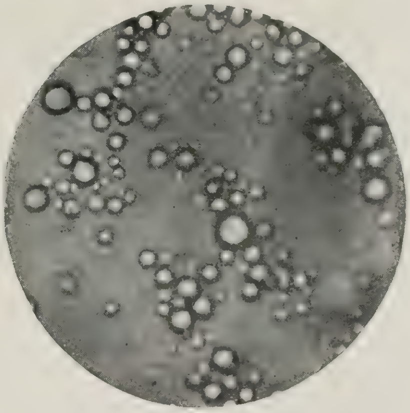
Review. The ash goes to make bone in the body of the calf. The casein and albumen go to make muscle, or lean meat, tendons, hoofs, horns and hair. The sugar and fat supply fat and make heat.

8. Take a pound of butter, cut it up and put it in a tall wide-mouthed bottle. Set the bottle in a basin of hot water until the butter is thoroughly melted. Set it in a warm place, cover on, for an hour.

The butter separates into layers. The top layer is oily and constitutes the greater part. Measure it and estimate the relative proportions. Butter contains about 82 to 85 per cent, by weight, of fat. The milky liquid is brine. If you can get it out by itself, you can evaporate the water and leave the salt behind.



This little microscope will show fat globules in cream. It can be purchased for $5 of Kahn & Co., New York City.



Fat globules as seen in cream under a microscope.

Notice carefully and you may see pieces of curd. It is the casein of the milk. All butter will contain some casein. It causes the butter to deteriorate. It should be washed off the butter granules with clear water in the churn before the butter is salted and worked.

9. Take a small piece of butter in a teaspoon. Heat it with a lighted match. It froths freely but quietly. Try the same experiment with a piece of oleo, if it is available. It does not froth but melts down like grease and cracks and sputters. Renovated butter will do the same. Milk fat is a mixture of a number of fats, some of which are volatilized (turned into vapor) at comparatively low temperature (by the heat of a match) and make the butter froth. Oleo does not contain these fats. Notice the difference in the odor of the melted

butter and oleo. Renovated butter is a rancid butter which has been made over by a process of heating and rechurning. The volatile fats are driven off by the heating.

10. Decomposition of Milk. Take two glass fruit jars which have been thoroughly cleaned and rinsed by boiling water. Take a quantity of milk and divide equally between the two jars. Heat one 80 degrees F. and set in a warm place. Cool the other to 50 degrees F. and set in a cool place. Note the length of time required for each to get thick. The thickening is caused by bacteria growing in the milk. They grow fastest at the higher temperature. To keep milk it should be cooled to a temperature where the bacteria do not grow fast.

A. B. G.

SCORE CARD FOR DAIRY CATTLE.

SCALE OF POINTS.	FEMALE		
	Standard	Students	Corrected
	Score	Score	Score
GENERAL APPEARANCE: 16 Points			
Weight—Estimated......lbs.; Actual......lbs.	1		
Form, wedge shape from front, side, top	7		
Quality, hair fine, silky; skin mellow, loose, medium thick, yellow, not fleshy; bone fine	8		
HEAD AND NECK: 8 Points			
Muzzle, broad; nostrils large	1		
Eyes, of good size, mild, bright	1		
Face, lean, fine, shapely	1		
Forehead, broad	2		
Ears, medium size, yellow inside, not coarse	1		
Neck, fine, rather long, well set on shoulders and head; top line slightly curved; throat clean; light dewlap	2		
FOREQUARTERS: 5 Points			
Withers, lean, thin	1		
Shoulders, light, oblique	2		
Legs, straight, short; shank fine, feet well placed	2		
BODY: 24 Points			
Chest, deep, low, full; girth large	8		
Crops, not deeply depressed	1		
Ribs, long, broad, well sprung	5		
Back, lean, strong, well defined	2		
Barrel, deep, girth large	3		
Loin, broad, long, level	4		
Flanks, low, deep from hip down	1		
HINDQUARTERS: 13 Points			
Hips, wide apart	3		
Rumps, broad, level, long	3		
Pin Bones or Thurls, high, wide apart	1		
Thighs, thin, roomy, long and well carried	3		
Legs, straight, short, wide apart, shank fine	2		
Tail, long, fine, reaching hocks, good switch	1		
UDDER OR RUDIMENTARIES: 34 Points			
Front Udder, carried well forward, full, thick, soft and mellow within, quarters even	12		
Hind Udder, full in form, well up behind, good width, mellow, even	10		
Milk Veins, large, long, elastic, tortuous	6		
Milk Wells, large	2		
Teats, 3 to 4 in. long, good size, well placed	4		
Rudimentaries, four, well placed			
Total	100		

NOTE—A defective teat or udder disqualifies. Females should weigh from 750 to 1400 lbs.

SCORE CARD FOR FAT CATTLE.

SCALE OF POINTS.	Perfect Score	Students Score	Corrected Score
GENERAL APPEARANCE: 38 Points			
Size and Weight, score according to age. At 12 months 850 lbs., at 30 months 1500 lbs.	6	....	....
Form, top line and underline straight; broad, deep, low set, compact, neat paunch, stylish	10	....	....
Quality, refinement as shown by clean, fine bone, mellow elastic hide, soft and silky hair	6	....	....
Condition, degree of fatness as shown by fullness of cod flank and tongue root and covering of ribs	8	....	....
Fleshing, thickness, smoothness and firmness of covering	8	....	....
HEAD AND NECK: 7 Points			
Muzzle, broad, mouth large, jaws wide, nostrils large	1	....	....
Eyes, large, bright, placid, quiet expression	1	....	....
Face, short, slightly dished	1	....	....
Forehead, broad, full	1	....	....
Ears, medium size, not coarse, well set	1	....	....
Neck, thick, short, throat clean	2	....	....
FOREQUARTERS: 9 Points			
Shoulder Vein, full and smooth	2	....	....
Shoulders, well set, compact on top, nicely covered with flesh	3	....	....
Brisket, advanced, wide	1	....	....
Dewlap, skin not too loose and drooping	1	....	....
Legs, straight, short, arm full; shank fine, smooth	2	....	....
BODY: 31 Points			
Chest, full, deep, wide, girth large, foreribs full	5	....	....
Ribs, long, well arched, thickly fleshed	8	....	....
Back, broad, straight, smooth, thickly fleshed, even in covering	8	....	....
Loin, broad, thickly fleshed	8	....	....
Flanks, deep, full, even with underline	2	....	....
HINDQUARTERS: 15 Points			
Hips, moderately well set in, smoothly covered	1	....	....
Rump, long, wide, even, not droopy, free of patchiness, tail head smooth	4	....	....
Thighs, thick, broad, full	4	....	....
Twist, deep, plump	4	....	....
Legs, well placed, short; hocks straight; shanks fine and smooth	2	....	....
Total Points	100	....	....

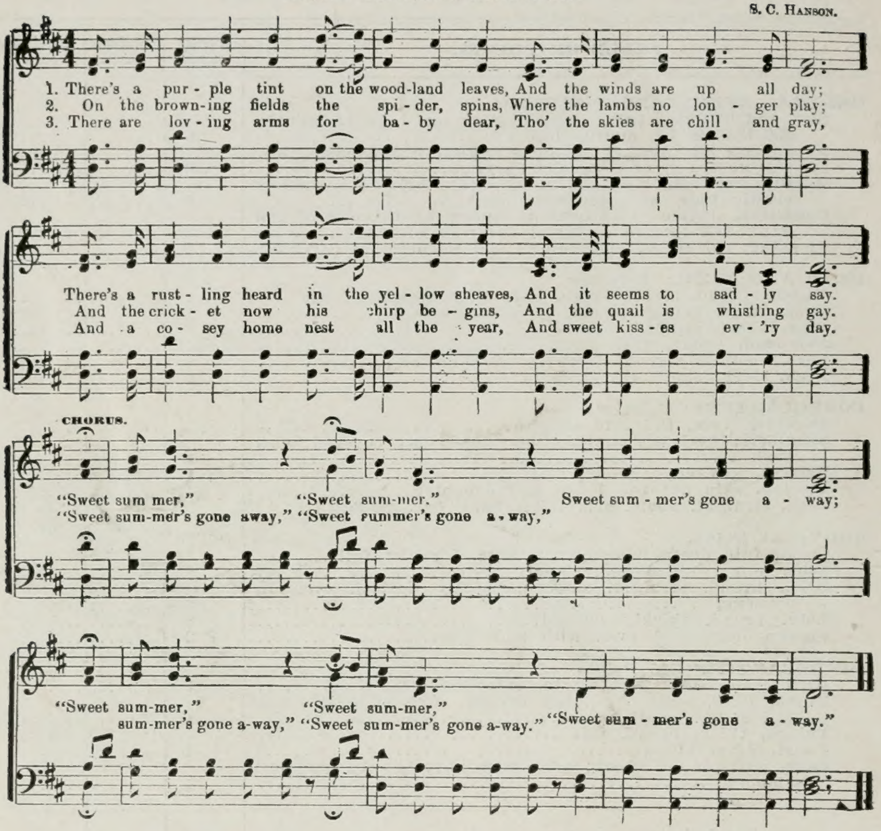
Terms not understood will be explained by any cattle-raiser. Have cards printed like the ones on pages 14 and 15. Some competent person should be secured to give lessons in judging cattle. Use animals that are halter-broke.

The College of Agriculture will help teachers and others to name plants, insects, fruits, etc., from specimens mailed or expressed. Our desire is to see Nature Work and Agriculture successfully pursued. Occasionally an instructor may be secured for some special instruction in Dairying, Horticulture, Soil Fertility, Animal Judging or Farm Crops.

A. B. GRAHAM, Supt. Agricultural Extension.

SWEET SUMMER'S GONE AWAY.

S. C. HANSON.


1. There's a pur - ple tint on the wood-land leaves, And the winds are up all day;
2. On the brown-ing fields the spi - der, spins, Where the lambs no lon - ger play;
3. There are lov - ing arms for ba - by dear, Tho' the skies are chill and gray,
There's a rust - ling heard in the yel - low sheaves, And it seems to sad - ly say.
And the crick - et now his chirp be - gins, And the quail is whistling gay.
And a co - sey home nest all the year, And sweet kiss - es ev - 'ry day.
CHORUS.
"Sweet sum mer," "Sweet sum-mer." Sweet sum - mer's gone a - way;
"Sweet sum-mer's gone away," "Sweet summer's gone a - way,"
"Sweet sum-mer," "Sweet sum-mer,"
sum-mer's gone a-way," "Sweet sum-mer's gone a-way." "Sweet sum - mer's gone a - way."

The mailing list used before July 1, 1911, has been destroyed. A name on the Agricultural Extension Bulletin list remains for one year only. If your friends don't receive it, they should renew their request to the College of Agriculture, Ohio State University, Columbus, Ohio.